Table C.8-22. Construction and operation project data for Canister Storage Building (HCSB-1).

Generic Information	
Description/function and EIS Project number:	Interim storage of INEEL Calcine
EIS alternatives:	Min. INEEL Proc. Alternative
Project type or waste stream:	Calcine
Action type:	New
Structure type:	Concrete and steel buildings
Size: (m^2)	11,710
Other features: (e.g., pits, ponds, power/water/sewer lines)	None
Location: Inside/outside of fence: Inside/outside of building:	Hanford 200 Area
Construction Information	
Schedule start/end:	
Preconstruction:	
CSB #1	January 2009-January 2010
CSB #2	January 2014-January 2015
CSB #3	January 2019-January 2020
Construction:	
CSB #1	January 2010-January 2012
CSB #2	January 2015-January 2017
CSB #3	January 2020-January 2022
Number of workers: (new/existing)	79/0 each yr
Nonradiation	79
Number of radiation workers	None
Average annual worker radiation dose (rem/yr)	None
Transportation mileage	
Truck: (km/yr)	200,000
Rail:	0
Employees: (km/yr)	2,130,074
Heavy equipment:	
Equipment used	Excavator, grader, crane, delivery trucks
Hours of operation: (hr/yr)	15,600
Acres disturbed (per CSB)	
New (acres)	15
Previous (acres)	None
Revegetated (acres)	None

Construction Information (continued)	
Air emissions:	
Construction total: (tons/yr)	1,022
Dust: (tons/yr)	216
Major gas (CO_2) from diesel exhaust: (tons/yr)	764
Contaminants[a] from diesel exhaust: (tons/yr)	42
Effluents:	
Sanitary wastewater: (L/yr)	1,943,598
Solid wastes:	
Construction trash: (m^3/yr)	936
Hazardous/toxic chemicals and wastes	
Generation (used lube oil): (m^3/yr)	3
Storage/inventory: (m^3/yr)	0.2
Pits/ponds created: (m^2)	465 (per CSB)
Water usage:	
Dust control: (L/yr)	151,400
Domestic water: (L/yr)	1,943,598
Energy requirements:	
Electrical: (MWH/yr)	2,850
Fossil fuel: (L/yr)	354,276
Operational Information	
Schedule start/end:	
CSB #1	January 2012-Apr 2030
CSB #2	January 2017-April 2030
CSB #3	January 2022-April 2030
Number of workers each year of operation (new/existing)	
Total:	9/0
Radiation workers:	9/0
Average annual worker radiation dose: (person-rem/yr)	1.8
Transportation mileage	
Truck:	0
Rail:	0
Employees: (km/yr)	242,667
Heavy equipment:	Canister transporter, occasional delivery trucks
Hours of operation: (hrs/yr)	5,840
Air emissions:	
Fossil fuel emissions: (tons/yr)	302

Table C.8-22. (Continued).

Operational Information (continued)			
Effluents:		Pits/ponds used: (m^2)	None
Sanitary wastewater: (L/yr)	221,423	Water usage	
Solid wastes:		Process water: (L/yr)	0
Sanitary/industrial trash: (m^3/yr)	50	Domestic water: (L/yr)	221,423
Radioactive wastes:	None	Energy requirements	
Hazardous/toxic chemicals and wastes		Electrical: (MWH/yr)	44
Generation: (m^3/yr)	1.11	Fossil fuel: (L/yr)	132,626

a. CO, NO_x, SO_2, hydrocarbons, particulates.

Table C.8-23. Decontamination and decommissioning project data for Canister Storage Building (HCSB-1).

Decontamination and Decommissioning (D&D) Information			
Schedule start/end:	June 2030-June 2031	Air emissions:	
Number of workers each year of D&D (new/existing):	84/0 per year	Dust: (tons/yr)	0
		Gases (CO_2): (tons/yr)	2,445
Number of radiation workers (D&D):	None	Contaminants[a]: (tons/yr)	134
Average annual worker radiation dose:	0 (person-rem/yr)	Effluents:	
Transportation mileage		Non-radioactive sanitary wastewater (L/yr)	2,066,610
Truck: (km/yr)	390,000	Solid wastes:	
Rail:	0	Non-radioactive (industrial): (m^3/yr)	996
Employee: (km/yr)	2,264,889	Hazardous/toxic chemicals and wastes	
Heavy equipment:		Generation (used lube oil): (m^3/yr)	9.45
Equipment used:	Mobile cranes, roll-off trucks, dozers, loaders	Storage/inventory: (m^3/yr)	0.73
		Pits/Ponds created:	None
Hours of operation: (hr/yr)	49,920	Water usage	
Acres disturbed:		Process water: (L/yr)	151,400
New (acres)	None	Domestic water: (L/yr)	2,066,610
Previous (acres)	None	Energy requirements	
Revegetated (acres)	45	Electrical: (MWH/yr)	1,500
		Fossil fuel: (L/yr)	1,133,683

a. CO, NO_x, SO_2, hydrocarbons.

Table C.8-24. Construction and operation project data for the Calcine Dissolution Facility (CALDIS-001).

Generic Information	
Description/function and EIS project number:	Facility to unload INEEL calcine containing canisters and separate waste into HAW and LAW
EIS alternatives:	Minimum INEEL Processing Alternative
Project type or waste stream:	INEEL Aluminum and Zirconium Calcine and SBW Ion Exchange Resin
Action type:	New
Structure type:	Concrete and steel building
Size: (m^2)	3,761
Other features (e.g., pits, ponds, power/water/sewer lines)	Extension to existing underground utilities
Location:	Hanford 200 Area
Construction Information	
Schedule start/end:	
Construction:	Dec. 2023 - Dec. 2027
Number of workers: (new/existing)	
Nonradiation	286/0 each yr
Radiation workers (construction)	None
Average annual worker radiation dose (rem/yr)	None
Transportation mileage	
Truck: (km/yr)	67,500
Rail:	0
Employees: (km/yr)	7,711,407
Heavy equipment:	
Equipment used	Excavators, graders, cranes, Concrete trucks, material delivery trucks, and water trucks
Hours of operation (hr/yr)	2,080
Acres disturbed and duration:	August 2010 – December 2037
New (acres)	6.80
Previous (acres)	None
Revegetated (acres)	None
Air emissions:	
Construction total: (tons/yr)	83
Dust: (tons/yr)	56

Construction Information (continued)	
Major gas (CO_2) from diesel exhaust: (tons/yr)	25
Contaminants[a]: (tons/yr)	1.4
Effluents:	
Sanitary wastewater: (L/yr)	7,035,679
Solid wastes:	
Construction trash: (m^3/yr)	3,384
Hazardous/toxic chemicals and wastes	
Generation (used lube oil): (m^3/yr)	0.39
Storage/inventory (m^3/yr)	0.36
Pits/ponds created (m^2)	465
Water usage	
Dust control (L/yr)	151,400
Domestic water (L/yr)	7,035,679
Energy requirements	
Electrical: (MWH/yr)	208
Fossil fuel: (L/yr)	47,237
Operational Information	
Schedule start/end:	February 2028-April 2030
Number of workers each year of operation (new/existing)	
Operations	15/0
Maintenance	6/0
Support	2/0
Total	23/0
Number of radiation workers	23 (included in above total)
Average annual worker radiation dose (person-rem/yr)	4.6 (200 millirem/worker)
Transportation mileage	
Truck: (km/yr)	662,990
Rail: (km/yr)	0
Employees: (km/yr)	620,148
Heavy equipment	
Hours of operation (hrs/yr)	3,650
Air emissions	
CO_2 from diesel exhaust (tons/yr)	3,431
Contaminants[a]: (tons/yr)	187
Process radioactive air emissions: (Ci/yr)	1.99×10^{-4}
Other oxide air emissions: (kg/yr)	
B_2O_3	6.52×10^{-7}
BaO	2.44×10^{-8}

Table C.8-24. (Continued).

Operational Information (continued)			
CaO	1.12×10^{-6}	Hazardous/toxic chemicals and wastes:	
CdO	2.40×10^{-7}	Generation (hazardous wastes) (m^3/yr)	1
Cr_2O_3	9.41×10^{-8}	Process chemicals (nitric acid, sodium	
Fe_2O_3	1.50×10^{-7}	hydroxide): (m^3/yr)	31,371
$MgCO_3$	6.79×10^{-7}	Pits/ponds used:	None
MnO	3.48×10^{-9}	Water usage:	
Effluents		Process water: (L/yr)	26,750,511
Sanitary wastewater (L/yr)	565,858	Domestic water: (L/yr)	565,858
Solid wastes		Energy requirements	
Sanitary/industrial trash (m^3/yr)	127	Electrical: (MWH/yr)	13,615
Process output		Equivalent fuel oil to generate required	
Dissolved calcine to TWRS treatment		steam: (L/yr)	670,197
system: (L/yr)	33,288,889	Equipment/vehicle fuel: (L/yr)	82,892
Radioactive wastes		Total fossil fuel: (L/yr)	753,089
HEPA filters: (m^3/yr)	8		
Misc. radioactive wastes: (m^3/yr)	34		
Total: (m^3/yr)	42		

a. CO, NO_x, SO_2, hydrocarbons.

Table C.8-25. Decontamination and decommissioning project data for the Calcine Dissolution Facility (CALDIS-001).

Decontamination and Decommissioning (D&D) Information			
Schedule start/end:	April 2030-April 2032	Effluents:	
Number of workers each year of D&D (new/existing)	312/0 each yr	Radioactive:	
		Spent decontamination solution: (L/yr)	295,264
Number of radiation workers (D&D)	312	(Ci/yr)	132,860
Average annual worker radiation dose (rem/yr)	62 (200 mrem/worker)	Non-radioactive:	
		Sanitary wastewater: (L/yr)	7,669, 763
Transportation mileage		Radioactive wastes	
Truck: (km/yr)	42,500	Radioactive waste quantity[b]: (m^3/yr)	3,679
Rail: (km/yr)	0	(Ci/yr)	37
Employees: (km/yr)	8,405,631	Solid waste	
Heavy equipment:		Industrial trash: (m^3/yr)	3,689
Equipment used	Dozers, dump trucks, loaders, cranes, concrete trucks	Hazardous/toxic chemicals and wastes	
		Generation (used lube oil): (L/yr)	394
Hours of operations (all heavy equip.) (hr/yr)	2,080	Storage/inventory: (m^3/yr)	0.02
		Pits/ponds created: (m^2)	None
Acres disturbed		Water usage	
New (acres)	None	Dust control water: (L/yr)	151,400
Previous (acres)	None	Process water: (L/yr)	295,264
Revegetated (acres)	6.80	Domestic water: (L/yr)	7,669,763
		Total water: (L/yr)	8,116,427
Air emissions		Source of water:	Columbia River
Non-radioactive:			
Gases (CO_2) (tons/yr)	51	Energy requirements	
Contaminants[a]: (tons/yr)	2.78	Electrical: (MWh/yr)	156
Radioactive		Fossil fuel: (L/yr)	47,237
HEPA filtered off-gas: (Ci/yr)	0.80		

a. CO, particulates, NO_x, SO_2, hydrocarbons.

b. All tanks, pipes, vessels, pumps, filters and other equipment in immediate contact with process stream.

Table C.8-26. Project data for Calcine Separations/Vitrification (CALVIT-001).

Generic Information		**Operational Information (continued)**	
Description/function and EIS Project number:	Separation and Vitrification of HAW and LAW component at Hanford Treatment Facilities	LAW Component	
		Chemicals (g/sec)	
		SO_2	4.98×10^{-1}
EIS alternatives:	Min. INEEL Proc. Alternative	NO_2	5.63×10^{-1}
Project type or waste stream:	INEEL Aluminum and Zirconium Calcine and SBW Ion Exchange Resin	CdO	3.80×10^{-12}
		Cr_2O_3	1.21×10^{-12}
		Cl_2	8.02×10^{-4}
Structure type:	Existing facility	B_2O_3	2.90×10^{-11}
Size: (plain view)		CaO	7.52×10^{-10}
Other features: (e.g., pits, ponds, power/water/sewer lines)	None	Fe_2O_3	2.99×10^{-12}
		UO_2	7.04×10^{-15}
Location:	Hanford 200 Area	BaO	3.94×10^{-13}
Inside/outside of fence:	Inside	Radionuclides (Ci/yr)	
Inside/outside of building:	Inside	Cs-137	1.79×10^{-7}
Operational Information		Sr-90	4.62×10^{-7}
Schedule start/end:	January 2029-April 2030	Y-90	4.62×10^{-7}
Number of workers (new/existing)		Tc-99	3.98×10^{-9}
Total	708/0 each yr	Am-241	1.84×10^{-8}
Number of radiation workers	657/0 each yr	Pu-238	1.14×10^{-8}
Average annual worker radiation dose (person-rem/yr)	131 (200 millirem/worker)	Pu-239 and 240	4.16×10^{-10}
		Pu-241	1.69×10^{-9}
Heavy equipment		Effluents	
Hours of operation	0	Sanitary wastewater: (L/yr)	17,418,570
Transportation mileage (km/yr)		Solid wastes	
Truck: (km/yr)	250,000	Sanitary/industrial trash: (m^3/yr)	3,925
Rail: (km/yr)	283,000	Radioactive wastes	
Employees: (km/yr)	19,089,778	Vitrified waste output:	
Air emissions from vitrification		LAW volume (m^3/yr)	10,417
HAW component		LAW boxes (2.6 m^3/box) per year	4,019
Radionuclides (Ci/yr)		HAW volume (m^3/yr)	530
Cs-137	2.36×10^{-5}	HAW glass canisters (1.17 m^3/canister) per year	453
Sr-90	2.57×10^{-5}		
Y-90	2.57×10^{-5}	HEPA filters: (m^3/yr)	8
Tc-99	8.99×10^{-10}	(Ci/yr)	23
Am-241	2.02×10^{-8}	Misc. radiological waste: (m^3/yr)	966
Pu-238	1.73×10^{-7}	(Ci/yr)	966
Pu-239 and 240	6.125×10^{-9}	Hazardous/toxic chemicals and wastes	
Pu-241	8.40×10^{-8}	Generation (hazardous wastes): (m^3/yr)	0

Table C.8-26. (Continued).

Operational Information (continued)			
Pits/ponds used	None	Energy requirements	
Water usage		Electrical: (MWH/yr)	642,857
Process (HAW and LAW processing): (L/yr)	1,826,200,000	Fossil fuel: (L/yr)	4,140,000
Domestic (HAW and LAW processing): (L/yr)	17,418,570		